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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/843,909 | 04/30/2001 | Philip Curran | P66616US0 | 9864 |

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04/18/2005

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EXAMINER

PHILPOTT, JUSTIN M

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 09/843,909 | Applicant(s) CURRAN ET AL. | |
| | Examiner Justin M Philpott | Art Unit 2665 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 2 and 5-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically claim 14 recites the limitation "each tap block" (page 15, line 21).

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent No. 6,377,640 to Trans.

Regarding claim 1, Trans teaches a cancellation system (e.g., see col. 40, line 50 – col. 50, line 7) for echo or crosstalk noise in a communications transceiver for a plurality of channels, the system comprising a channel circuit comprising taps for each channel and means for training

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the taps by setting coefficient values, characterized in that: at least some of the channel circuits (e.g., see Com2000™ transceiver in FIG. 3) each comprise insufficient taps for a full span (e.g., see col. 45, lines 32-50 regarding a number of filter taps); each of the channel circuits further comprises a variable delay line (e.g., tapped delay line within Com2000™ Equalizer, see col. 36, lines 47-52) connected in series with the taps (e.g., see col. 44, line 58 – col. 47, line 26 and FIGS. 5A-5E regarding taps in series within the Equalizer); the training means comprises means for setting length of each variable delay line so that positions of the taps are optimized (e.g., see col. 45, lines 39-43 regarding determining the number of filter taps and optimizing their coefficients).

Regarding claim 4, Trans teaches taps are arranged in at least one block having a fixed number of taps (e.g., see FBE block in FIG. 5B comprising a fixed number of tap blocks T).

Regarding claim 12, Trans teaches training means comprises an adaptation module (e.g., FBE, see FIG. 5B) for at least one tap block (e.g., see FBE block in FIG. 5B comprising a fixed number of taps blocks T).

Regarding claim 13, Trans teaches adaptation modules (e.g., FBE block in FIG. 5B) comprise means for training two or more tap blocks (e.g., a plurality of tap blocks T).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trans in view of U.S. Patent No. 6,240,133 to Sommer et al.

Regarding claim 3, Trans teaches the system discussed above regarding claim 1, however, may not specifically disclose each channel circuit comprises a plurality of variable delay lines separated by taps. Sommer also teaches a cancellation system, and further, specifically teaches each channel circuit comprises a plurality of variable delay lines (e.g., delay 50, see FIG. 3) separated by taps (e.g., separated by coupling to adaptive multiplier 52 comprising taps, see col. 11, lines 38-50). The teachings of Sommer provides increased speed of tracking time varying reflections without sacrificing stability (e.g., see col. 3, line 20 – col. 6, line 56). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply the cancellation teachings of Sommer to the cancellation system of Trans in order to provide increased speed of tracking time varying reflections without sacrificing stability.

Allowable Subject Matter

7. Claims 2, 5-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. The following is a statement of reasons for the indication of allowable subject matter:

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10. Claims 2 and 14 each recite training means which comprises means for sharing taps from another channel circuit when training each channel circuit in order to achieve a full span for each channel during training, wherein claim 14 further recites additional limitations;

Claim 5 recites training means which comprises means for determining an optimum position for each tap block to set the length of a variable delay line;

Claim 10 recites each channel circuit comprises in series: a near variable delay line, a near tap block, a far variable delay line, and a far tap block; and

Claim 11 recites each variable delay line comprises cascaded register blocks linked by multiplexers comprising means for bypassing a register block or feeding data through it according to training control signals setting a delay length; wherein the above-mentioned limitations were not found in a search of related prior art.

11. Claims 6-9 depend upon claim 5 and comprise allowable subject matter for the same reasons discussed above regarding claim 5.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 5,483,551 to Huang et al., 5,675,644 to Sih, and 5,970,088 to Chen each disclose cancellation systems for echo or crosstalk noise.

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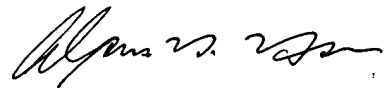
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 571.272.3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin M Philpott



ALPUS H. HSU
PRIMARY EXAMINER